

WHAT IS CLAIMED

1. An isolated polynucleotide comprising a nucleic acid sequence selected from the group consisting of:
 - 5 (a) a nucleic acid sequence having at least 80% sequence identity to SEQ ID NO: 3, wherein the % sequence identity is based on the entire coding region and is calculated by the GAP algorithm under default parameters, wherein the sequence encodes a polypeptide with RuvB activity; and
 - 10 (b) a nucleic acid sequence which is fully complementary to the nucleic acid sequence of (a).
- 15 2. The isolated polynucleotide of claim 1, wherein the nucleic acid sequence has at least 85% sequence identity to SEQ ID NO: 3.
3. The isolated polynucleotide of claim 1, wherein the nucleic acid sequence has at least 90% sequence identity to SEQ ID NO: 3.
4. A recombinant expression cassette, comprising the polynucleotide of claim 1 operably linked to a promoter.
- 20 5. A host cell comprising the polynucleotide of claim 1.
6. A transgenic plant comprising the polynucleotide of claim 1.
- 25 7. The transgenic plant of claim 6, wherein said plant is a monocot.
8. The transgenic plant of claim 6, wherein said plant is a dicot.

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9. The transgenic plant of claim 6, wherein the plant is selected from the group consisting of corn, soybean, sunflower, sorghum, canola, wheat, alfalfa, cotton, rice, barley, and millet.
- 5 10. A transgenic seed from the transgenic plant of claim 6, wherein the seed comprises the polynucleotide.
11. An isolated polynucleotide comprising a nucleic acid sequence selected from the group consisting of:
- 10 (a) a nucleic acid sequence encoding a polypeptide having at least 80% sequence identity of the entire length of SEQ ID NO: 4, as determined by the GAP algorithm under default parameters, wherein the encoded polypeptide has RuvB activity; and,
- 15 (b) a nucleic acid sequence which is fully complementary to the nucleic acid sequence of (a).
12. The isolated polynucleotide of claim 11, wherein the polynucleotide encodes a polypeptide having at least 85% sequence identity to SEQ ID NO: 4.
- 20 13. The isolated polynucleotide of claim 11, wherein the polynucleotide encodes a polypeptide having at least 90% sequence identity to SEQ ID NO: 4.
14. A recombinant expression cassette comprising the polynucleotide of claim 11 operably linked to a promoter.
- 25 15. A host cell comprising the polynucleotide of claim 11.
16. The host cell of claim 15, wherein the host cell is a plant cell.
- 30 17. A transgenic plant comprising the polynucleotide of claim 11.

18. The transgenic plant of claim 17, wherein said plant is a monocot.
19. The transgenic plant of claim 17, wherein said plant is a dicot.
- 5 20. The transgenic plant of claim 17, wherein said plant is selected from the group consisting of maize, soybean, safflower, sunflower, sorghum, canola, wheat, alfalfa, cotton, rice, barley, and millet.
- 10 21. A transgenic seed from the transgenic plant of claim 17, wherein the seed comprises the polynucleotide.
22. A method of modulating the level of RuvB in a plant cell, comprising:
- 15 (a) introducing into a plant cell a recombinant expression cassette comprising the polynucleotide of claim 1 operably linked to a promoter;
- (b) culturing the plant cell under plant cell growing conditions; and
- (c) expressing the polynucleotide for a time sufficient to modulate the level of RuvB in the plant cell.
23. A method of modulating the level of RuvB in a plant, comprising:
- 20 (a) introducing into a plant cell a recombinant expression cassette comprising the polynucleotide of claim 1 operably linked to a promoter;
- (b) culturing the plant cell under plant cell growing conditions;
- (c) regenerating a transformed plant comprising the polynucleotide; and
- 25 (d) expressing the polynucleotide for a time sufficient to modulate the level of RuvB in the plant.
24. The method of claim 23, wherein the plant is maize.
25. A method of modulating the level of RuvB in a plant cell, comprising:
- 30 (a) introducing into a plant cell a recombinant expression cassette comprising the polynucleotide of claim 11 operably linked to a promoter;

- (b) culturing the plant cell under plant cell growing conditions; and
- (c) expressing the polynucleotide for a time sufficient to modulate the level of RuvB in the plant cell.

- 5 26. A method of modulating the level of RuvB in a plant, comprising:
- (a) introducing into a plant cell a recombinant expression cassette comprising the polynucleotide of claim 11 operably linked to a promoter;
 - (b) culturing the plant cell under plant cell growing conditions;
 - (c) regenerating a transformed plant comprising the polynucleotide; and
 - 10 (d) expressing the polynucleotide for a time sufficient to modulate the level of RuvB in the plant.

27. The method of claim 26, wherein the plant is maize.

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